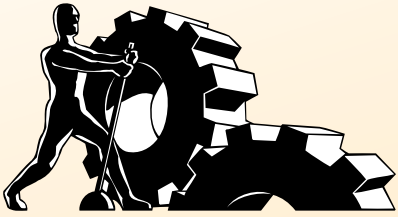


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Joe Kissell

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Read Me First

Welcome to *Take Control of Backing Up Your Mac*, version 1.0, published in September 2011 by TidBITS Publishing Inc. This book was written by Joe Kissell and edited by Michael E. Cohen with help from Tonya Engst.

The data on every Mac should be backed up to protect you against theft, hardware failure, user error, and other catastrophes. This book helps you design a sensible backup strategy, choose and configure the best backup hardware and software for your needs, and understand how to make your backups as painless as possible.

If you have an ebook version of this title, please note that if you want to share it with a friend, we ask that you do so as you would a physical book: “lend” it for a quick look, but ask your friend to buy a new copy to read it more carefully or to keep it for reference. Discounted [classroom and Mac user group copies](#) are also available.

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Updates

You can access extras related to this book on the Web (use the link in [Ebook Extras](#), near the end; it’s available only to purchasers). On the ebook’s Take Control Extras page, you can:

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Basics

Here are a few “rules of the road” that will help you read this book:

- **Menus:** Where I describe choosing a command from a menu in the menu bar, I use an abbreviated description. For example, the abbreviated description for the menu command that creates a new folder in the Finder is “File > New Folder.”
- **Contextual menus:** *Contextual* menus appear when you Control-click various elements on a Macintosh screen, including Dock items and files in Finder windows. To describe opening a contextual menu, I usually I tell you to right-click (Control-click) an item on the screen. If your mouse offers a right-click option, or if you use a trackpad or other means of opening a contextual menu, you should feel free to use the method you prefer.
- **Finding System Preferences:** I sometimes refer to settings in System Preferences that you may want to adjust. To open System Preferences, click its icon in the Dock or choose Apple  > System Preferences. When the System Preferences window opens, click the icon of the pane whose settings you want to adjust. I refer to these panes using a brief notation such as “the Network preference pane.”
- **Finding an application’s preferences:** I often refer to preferences in an application that you may want to adjust. Don’t confuse an application’s preferences with the system-wide settings found in System Preferences. To access an application’s preferences, choose *Application Name* > Preferences. For example, in the program Retrospect, you would choose Retrospect > Preferences.
- **Path syntax:** This book occasionally uses a *path* to show the location of a file or folder in your file system. For example, Mac OS X stores most utilities, such as Terminal, in the Utilities folder. The path to Terminal is: `/Applications/Utilities/Terminal`.

The slash at the start of the path tells you to begin at the top level of the disk. Some paths begin with ~ (tilde), which is a shortcut for the current user’s home directory. For example, if the person currently logged in has the user name `joe` and wants to install fonts that only he can access, he would put them in `~/Library/Fonts`, which is just another way of writing `/Users/joe/Library/Fonts`.

- **Big cats:** I frequently mention details specific to a particular version of Mac OS X, which Apple usually refers to by a “big cat” code name:
 - Lion: Mac OS X 10.7
 - Snow Leopard: Mac OS X 10.6
 - Leopard: Mac OS X 10.5

What’s New in This Book

As I explain just ahead in the [Introduction](#), this book is effectively the sixth edition of *Take Control of Mac OS X Backups* plus the second edition of *Take Control of Easy Mac Backups*, rolled into one! Although the title has changed and the information has been consolidated, this book relies heavily on the contents of its predecessors. So if you had either of those titles previously, here are the most significant changes I made that you should be aware of:

- Totally rethought the organization of the material; even when the text itself is the same as in one of the previous books, it’s likely in a different place
- Updated the information in [What’s New in the World of Backups](#) to reflect changes in Lion and many other recent developments
- Included [Factors to Reevaluate](#) to help readers of previous Take Control ebooks about making backups quickly reassess their strategy as they begin reading this ebook.
- Added Lion-specific information throughout the book, especially in [Lion Is Out of Its Cage](#), [Local Snapshots in Lion](#), [Encrypt Your Time Machine Backup](#), and [Auto Save and Versions in Lion](#)
- Included information about Thunderbolt in several places, including [Choose an Interface \(or Several\)](#)
- Updated the information in [Create a Duplicate with Carbon Copy Cloner](#) to cover its new (and significantly changed) interface
- Removed most of the discussion of backing up to optical discs, because with each passing year it makes less sense, and I want to encourage readers who are still stuck on this outmoded technology to walk toward the light

Finding the Online Appendixes

Some content that was previously in appendixes has been moved to the Web at <http://www.takecontrolbooks.com/resources/0014/>:

- **Joe's Guide to Mac Backup Software:** This former appendix is now hugely expanded, and it compares nearly 100 different backup applications. It was moved online to make it easier to update.
- **Retrospect Primer:** This appendix provides procedures for setting up duplicates and versioned backups in Retrospect Desktop 6.x, along with a brief look at the terminology, logic, and interface used in that version. (I discuss the newest version of the program, which thankfully doesn't require so much handholding, in [Retrospect](#).)

Introduction

The first edition of *Take Control of Mac OS X Backups* hit the virtual shelves in December 2004. I had no inkling at the time that it would go through five editions, eventually becoming the best-selling Take Control book ever. All I knew was that backups were a big problem for Mac users. Even though most people realized the importance of backups, few people could say with certainty that their data was completely safe in the event of any conceivable disaster. That's because in 2004, properly backing up a Mac was, for the average user, a complicated, daunting, and expensive prospect. I wrote my book to help people sort through all those complications and eliminate the pain associated with backups.

Over the years, things changed. Backup hardware, software, and services multiplied at a shocking rate, prices fell precipitously, and Apple made numerous changes to Mac OS X (as well as to Mac hardware itself) that would significantly alter the backup landscape—so I kept updating my book to cover the new stuff. By the time the second edition appeared in 2007, *Take Control of Mac OS X Backups* had nearly doubled in length, and had become so unwieldy for some readers that we decided to spin off a more concise, simplified version of the book—first titled *Take Control of Easy Backups in Leopard*, and later renamed to *Take Control of Easy Mac Backups*—as well as to move some of the book's content into online appendixes. But the backup world kept right on changing, and both books kept growing.

As I began working on what would have been the sixth edition of *Take Control of Mac OS X Backups*, I felt perturbed that my books had become so much more complex, even though backups themselves had become much easier! Part of the reason for this mismatch was that I'd never bothered to purge a lot of information that was no longer relevant. (Do I really need to browbeat you into scheduling backups to run automatically, or spend seven pages convincing you that optical discs aren't the best choice for backups?) Another reason was that I was still trying to cater to those using what I now regard as an inefficient, old-fashioned approach to backups—the method I settled on back in the days when Retrospect was still the best choice in backup software for most Mac users.

I also realized that the basic three-pronged approach I outlined in *Easy Mac Backups* is, in fact, what I recommend for just about everyone, and if I obscure that information in the process of covering backups comprehensively, I'm doing my readers a disservice.

So, clearly the time had come to rethink my approach, and in the book you're now reading, here's what I've done:

- Merged the contents of *Easy Mac Backups* and *Mac OS X Backups* back into a single title
- Thoroughly reorganized the structure so that all the basic information comes first, and the more advanced information (which won't apply to everyone) comes later
- Ditched (or at least condensed) material that no longer needs so many words to cover adequately
- Changed the title to *Take Control of Backing Up Your Mac*, which I think is simpler and clearer

Historical note: *Part of the reason for the original title was that we wanted to be sure readers understood the book was only about Mac OS X, and didn't discuss backing up Mac OS 9!*

- Updated the contents to cover Mac OS X 10.7 Lion, as well as the latest options in hardware, software, and online services

With those changes made, I'd like to think that what we now have is a modern approach to Mac backups that covers the bases but doesn't overwhelm you with extraneous details. I explain how to develop a solid backup strategy, what your choices are, how to set everything up, what sorts of pitfalls you may encounter, and how to restore your data if disaster strikes. Rather than explore every alternative exhaustively, I guide you gently but firmly into a fairly narrow set of options that should yield excellent results for the vast majority of Mac users.

Before we get started, however, I need to mention a few qualifications:

- This book is primarily for people who need to back up either a single Mac or a small network—not for system administrators who need to back up dozens or hundreds of machines. As a result, I say little about the high-end equipment and enterprise-grade software used

for backing up large networks, focusing instead on simpler products that you can purchase at a modest price.

- I do not cover command-line software such as `cp` or `rsync`. My goal is to make the process as simple as possible—ideally, without requiring you to open Terminal or know anything about Unix. So this book concerns itself solely with software that uses a graphical user interface (GUI).
- Although I provide basic instructions for performing backups with several popular programs, I can't give you foolproof, step-by-step instructions for setting up every backup program you might use. But by the end of this book, you should have enough information to determine, with the help of your software's documentation, the preferences and settings you need in order to achieve your desired outcome.

This book covers backing up Macs running Mac OS X 10.5 Leopard or later, including 10.7 Lion. Although much of this material applies generally to machines running older versions of Mac OS X, I don't spell out any differences. In addition, although I don't cover Windows extensively, do see [Windows Files and Volumes](#), which discusses backing up Windows when it's running on your Intel-based Mac.

Mac Backups Quick Start

You can read this book in any order, but I suggest starting with [Plan a Backup Strategy](#) in order to understand the rationale behind the hardware, software, and setup advice I give later. Here are the components of a solid Mac OS X backup plan.

Decide on a backup strategy:

- If you already have a backup system in place based on what you read in an earlier edition of this book (or one of its predecessors), begin by reading [Reassess Your Backup Strategy](#) to find out what's new and which [Factors to Reevaluate](#) to determine whether any changes are in order.
- Everyone else: Start at the beginning, with the [Plan a Backup Strategy](#) chapter. You'll soon [Understand Joe's Basic Backup Strategy](#), which revolves around three key components: *versioned backups* (containing multiple copies of files as they existed at various points in time), a *bootable duplicate* (a complete, bootable copy of your hard disk), and *offsite storage* (in case something wipes out your Mac *and* the backup media sitting right next to it).

Assemble the components:

- Figure out whether Time Machine is a good option for your needs, and if not, select a different program to perform versioned backups. Read [Choose a Versioned Backup Program](#) for a feature overview, and then either pick an option noted in [Explore Backup Software Features](#) or consult the online appendixes for details and sources (<http://www.takecontrolbooks.com/resources/0014/>).
- [Pick a Hard Drive](#) or two to store your backups on (one of which may be inside a Time Capsule or similar device).
- Learn how to [Prepare Your Hard Drive](#) with the right number and type of partitions and volume formats for the types of backups you want to do.

Set up your backups:

- If you've chosen to use Time Machine for versioned backups, read [Configure and Use Time Machine](#). Otherwise, see [Use Other](#)

[Versioned Backup Software](#) to learn how to configure a versioned backup and verify that you can retrieve stored files.

- Make a bootable copy of your hard disk, schedule it for regular updates, and test it to make sure it works with the advice in [Create a Bootable Duplicate](#).
- One way or another, [Store an Extra Backup Offsite](#)—either by physically moving backup media or by signing up for an online backup service.

Address problems and unusual situations:

- If your disk dies, your Mac is stolen, or an important file goes missing, don't panic; read [What to Do When Disaster Strikes](#).
- After months or years of backing up your Mac, you may run out of space on your backup disks. Discover [What to Do When Your Disks Fill Up](#).
- Find out how to deal with backup needs that don't fit neatly into the duplicate or versioned categories in [Consider Special Backup Needs](#). As appropriate, read about [Digital Photos](#), [Dealing with Huge Volumes of Data](#), [Version Control](#), [Backing Up a Small Network](#), [Backing Up While on the Road](#), and [Windows Files and Volumes](#).
- If a standard, run-of-the-mill hard drive doesn't quite meet your backup needs, [Consider Other Hardware Options](#) such as a RAID, a Drobo device, or a hardware-encrypted drive.

Plan a Backup Strategy

In *Take Control of Mac OS X Backups*—especially in the earlier editions—I went out of my way to emphasize that there are many ways to back up one’s Mac, and my personal preferences notwithstanding, I attempted to lay out all the options, explain their pros and cons, and let you come to your own decisions about what method(s) to use. At first, this seemed like a reasonable, fair-minded approach, especially considering that the options I liked best were neither the least expensive nor the easiest to set up. I wanted to offer an out for people who couldn’t stomach that cost and complexity, as well as explaining how the truly paranoid (and those with lots of cash to burn) could be extra, extra safe.

But after seven years of reflection and a ton of feedback from readers, I’ve realized that providing an endless menu of options isn’t helpful for most people. In keeping with the Take Control spirit, I’ve decided to focus on the strategy, hardware, and software I can most heartily recommend based on extensive personal and professional experience. I’m going to give you my expert advice, and although that will include areas in which you can choose among several options, in this book I’m framing the decision more simply. I’ll be telling you, “Today’s choices are lasagna, fried rice, and ratatouille (and by the way, my lasagna is pretty darn good)” instead of saying, “Choose anything from *The Joy of Cooking*.”

If you follow my suggestions, you can rest easy knowing that your data is safe—and you won’t spend a fortune or spend days fiddling with setup either. And if you opt out of any of the three main components I recommend in my basic backup strategy, you’ll do so with both eyes open.

Understand Joe’s Basic Backup Strategy

Basically, the strategy I want you to follow consists of three key parts:

- **Versioned backups:** Use Time Machine or another backup program to store *versioned backups*—copies of each file as it existed at many points in time—on one partition of an external hard disk.

Reassess Your Backup Strategy

If you're reading this book for the first time, you may not already have a backup strategy—in which case, feel free to skip this chapter for now. But I suggest returning to it in a year or so, by which time you may benefit from its recommendations. If you already have a backup strategy, though, read on to learn the best way to proceed.

As things change in the world of backups—new hardware, software, and services appear, old products are discontinued, data storage needs grow, prices drop, Apple updates Mac OS X and produces new Macs—I keep a running list of things to cover when the time comes to update my *Backups* book. Once my list gets to a full page or so, I know it's time to start revising the book. Much to my surprise, that's happened almost once a year on average since *Take Control of Mac OS X Backups* first appeared in 2004!

I don't undertake these updates lightly. I step back and think carefully about my recommendations in light of the way my setup, my backup needs, and the overall computing landscape have evolved. Is the advice I gave last year still valid? Should I temper my enthusiasm for a certain product, or lobby more forcefully for a particular approach? Is there anything about which I've changed my mind, or my own practices?

Just as I reevaluate my stance every so often, you too should periodically reassess your backup strategy in light of new information. If you read an earlier incarnation of one of my books and set up your backup system based on what I said a year or more ago, I'd like you to reassess your strategy right now. Either way, put a reminder on your calendar for one year from now to come back and (re-)read this section, and then do it again!

I want to begin with a brief “state of the union” look at what has changed in the last year or so (as I write this in late 2011), and then say a few words about [Factors to Reevaluate](#) as you reconsider your backup strategy, both now and every year. Feel free to skim this section to see which topics are applicable to you; you might want to jot down a few notes about those topics to help you identify items to concentrate on as you reformulate your backup approach.

Choose a Versioned Backup Program

Under Leopard and later, Time Machine is the easiest way, by far, to create versioned backups—and it’s what I recommend for most people. However, you may not be most people. So I want to tell you a bit about why I like Time Machine, but before getting into the details about setting up and using it (see [Configure and Use Time Machine](#)), I also look at a few situations in which it may be the wrong solution. For those people who need different software, I point you in the right direction with a discussion of features to look for and examples of other versioned backup programs I can recommend.

Decide If Time Machine Is Right for You

By now, I assume most Mac users are aware of Time Machine, the backup software Apple built into Mac OS X starting with 10.5 Leopard in October 2007. Apple’s goal was to make backups as easy as possible, and compared to anything that came before it, Time Machine is certainly much simpler to set up and use. In some cases, you can set it up and turn it on with a grand total of one click! It’s hard to beat that.

Without a doubt, Apple got a lot of things right about Time Machine. And, with each successive update to Mac OS X, it’s become even better and more useful. For one thing, Time Machine is considerably faster and more reliable under 10.6 Snow Leopard and later than under 10.5 Leopard. You can now migrate data from a Time Machine backup when installing a new version of Mac OS X, restore an entire disk from Time Machine using the Recovery mode in 10.7 Lion, and archive backups from a Time Capsule to an external drive. In Lion, Time Machine backups can also—finally!—be encrypted! And Apple even borrowed the slick Time Machine interface for browsing multiple file versions in Lion (see [Auto Save and Versions in Lion](#), later).

Time Machine’s elegant simplicity comes at a cost, though—the software lacks some extremely useful features found in certain other backup programs, and isn’t a good match for every user or situation.

Pick a Hard Drive

You're going to need one or more external hard drives for your backups. (Even if you use a Time Capsule, you'll need a separate external hard drive to store a bootable duplicate; see [Decide Whether to Buy a Time Capsule](#) for details.) You can find hard drives with every imaginable combination of capacity, speed, interface, and case design—and the selection changes constantly.

In this chapter, I focus on the most important things to consider when choosing a drive (capacity, interface, and price) and help you to cut through some of the confusion. After you [Decide Whether to Buy a Time Capsule](#), at the end of the chapter, I help you [Decide How Many Drives to Buy](#) and [Find a Good Deal on Hard Drives](#).

In this chapter I cover only ordinary external hard drives, plus the Time Capsule and a few similar devices. But you may want something fancier, such as a RAID or a Drobo; something simpler, such as an adapter to connect a bare SATA drive to a USB port; or something highly specific, such as a hardware-encrypted drive. I discuss such options later, in [Consider Other Hardware Options](#).

Decide on Capacity

The most important consideration in a backup drive, by far, is its capacity—how many gigabytes of data it will hold. In general, the bigger, the better. In fact, I could simply say to get the largest hard drive you can afford, and that would be a reasonable rule of thumb.

However, if you can't afford an especially large drive, or if the amount of data you have to back up is exceptionally large, you may want more guidance. So figure out the size you'll need for duplicates, then the size you'll need for versioned backups, and finally the total size to look for.

Duplicate Size

You'll store, on part of your external hard drive, an exact, bootable copy of your Mac's regular startup volume. (If you use a Time Capsule, which can't store bootable duplicates, you'll use an entirely separate drive for this purpose.) But the volume that stores your duplicate need only be as large as the amount of data on your startup volume,

Prepare Your Hard Drive

You've just unpacked your brand new hard drive (or two), and you're ready to get busy backing up. You *might* be able to plug in the drive and start working with it immediately, but it depends. Some hard drives come formatted for Windows computers, for example, while others might be formatted for a Mac—or not at all. Some come preloaded with utilities and demo software. Some could use the wrong partition map scheme for your computer, which might, among other things, prevent Time Machine from being able to see or use the drive.

In short, because each manufacturer has slightly different ideas about how you might want to use your drive, you should take a few minutes, before you do anything else, to make sure it's configured correctly for your needs.

Outta time: *If you have a Time Capsule, its built-in drive comes preconfigured just the way you need it, so you don't need to worry about anything in this chapter for your Time Capsule. However, you must still follow these steps for the external drive you use to store your bootable duplicate, and any external drive(s) you decide to attach to your Time Capsule.*

Choose a Partition Map Scheme

Your hard drive contains a tiny block of information called a *partition map* or *partition table* that describes things like how many volumes the drive has, how large they are, and where they're located. The way information is stored in this little block of data is called the *partition map scheme*, and the choice of scheme turns out to be crucial to how the drive can be used. Windows PCs generally use a scheme called the Master Boot Record (MBR) Partition Table; pre-Intel Macs have, since the very beginning, used a scheme called Apple Partition Map (APM); and Intel-based Macs by default use a newer and more advanced scheme, GUID Partition Table (GPT). The partition map scheme affects the entire drive, regardless of how many partitions it has or how those partitions are formatted.

Configure and Use Time Machine

If you've decided to use Time Machine for versioned backups, this chapter tells you everything you need to know about using it. (If you've chosen other software for versioned backups, skip directly to [Use Other Versioned Backup Software](#).)

Apple says it takes just one click to set up Time Machine; while that may be true in rare cases, it's usually a bit more involved. This chapter walks you through all the details of setting up Time Machine, backing up and restoring files, and other activities.


Time Machine has three visible components: a preference pane found in System Preferences (**Figure 7**); an application found in the Applications folder, Launchpad, or the Dock (**Figure 8**); and a Time Machine  menu in the main menu bar. (You can enable or disable this menu with the Show Time Machine Status in Menu Bar checkbox in the Time Machine preference pane.)



Figure 7: Specify backup drives and ignored volumes in the Time Machine preference pane.

Use Other Versioned Backup Software

If you have decided to create versioned backups using a program other than Time Machine, set that up now. I wish I could give you step-by-step instructions for using each one of those applications, but that would take too many pages (and you can read the applications' documentation for help). Instead, I want to give you a few tips for each of several good choices. Although I've used and can recommend each of the programs I mention here, I don't pretend that this is an exhaustive list. There are many other excellent options, too, and you can read about them in the online appendixes at <http://www.takecontrolbooks.com/resources/0014/>.

ChronoSync Tips

If you've selected ChronoSync for versioned backups, please be aware of the following:

- **Put synchronizers in containers:** ChronoSync is designed around the concept of documents called *synchronizers*, which contain all the instructions for backing up or synchronizing a single volume or folder.

When you set up a backup or sync operation, what you're really doing is creating a synchronizer; the program prompts you to save it (in order to repeat that backup or sync procedure later) when you close the window or quit the program. Although ChronoSync gives you a wealth of options for each synchronizer, one fundamental limitation is that a synchronizer can apply only to a single volume or folder (and everything inside it). If you want to back up items from more than one location (perhaps even with different options) in a single operation, create one synchronizer for each folder or volume, save them individually, and then choose File > New > Container and add each synchronizer to the list. You can then run all the synchronizers in one pass, and even schedule the entire container to run at a predetermined time.

Create a Bootable Duplicate

Along with versioned backups, bootable duplicates are a key pillar of a complete backup plan. They let you get back to work quickly in the event of a hard drive failure, give you a useful troubleshooting tool, and make upgrading to a new version of Mac OS X safer.

You can't make a bootable duplicate by copying files in the Finder; you need a special utility. Lots of programs can do this, but I want to focus on two—SuperDuper and Carbon Copy Cloner—that focus on just this one task but do it easily and effectively.

Warning! Remember, you cannot store duplicates of two drives on the same volume, even if you put them in separate folders—the result will not be bootable. Oh, and let me reiterate yet again: you cannot create a bootable duplicate onto a Time Capsule (or even an external drive connected to a Time Capsule) over a network.

SuperDuper and Carbon Copy Cloner can make one-off duplicates, but they can also be configured to run automatically on a schedule, updating the duplicate with just those files that are new or changed since the last run, and deleting files on the destination that are no longer on the source disk. I recommend updating your duplicate at least once a week, plus right before you install any Mac OS X update. Scheduling your duplicate to update itself overnight, every 24 hours, will give you that much more security—and the nightly backups will go quicker, too, since there will be less new data to copy.

Set Ownership on the Destination Volume

Check to see that the destination volume does not ignore ownership; if it does, your duplicate will not be bootable. To check this, select the destination volume's icon in the Finder and choose File > Get Info. In the Sharing & Permissions (in Lion) or Ownership & Permissions (in Snow Leopard and earlier) portion of the window, make sure the checkbox labeled Ignore Ownership On This Volume is *deselected*.

Store an Extra Backup Offsite

No matter how many backups you have or how often you update them, they do you no good if they disappear along with your computer—as they likely will in the case of theft, fire, or any other serious disaster. I urge everyone to take the precautionary step of keeping a second copy of their backups safely away from their computer—preferably in another building altogether. You can do this with a second hard drive, with an Internet backup service, or with either of two services that let you use Time Machine remotely.

Use an Extra Hard Drive

If you purchase two or more hard drives, you can set each of them up the same way; then, back up to one drive for a week, switch to the other one, and take the first offsite. Repeat this rotation every week or so, and you'll be safe in the knowledge that if you lose your first backup, a second one is still available that's no more than a week out of date.

Although you can use this process with just two drives, having three is more convenient (although, of course, more expensive). At any time, you'll have one drive (A) in use, your next-most-recent one (B) onsite, and your oldest one (C) offsite. When you rotate the drives, you bring your oldest one (C) back onsite and make it active, while taking what has now become the oldest drive (B) offsite—and so on.

The safest way to keep multiple backup drives is to set them up separately. Configure one drive with partitions for duplicate and versioned backups. Set up Time Machine (or another archiving program) and let it run; also create a bootable duplicate. Then disconnect the drive and repeat the entire procedure with a second drive. If you use Time Machine, when you switch between drives, you need to tell it which disk to use now; see [Use Multiple Backup Disks with a Single Mac](#).

What to Do When Disaster Strikes

You've diligently performed the backups recommended in this book, and then, one fateful day, disaster strikes. It might be a small disaster (one important file is missing) or a large one (your whole computer is missing). In any case, the very first thing you should do is take a deep breath and remind yourself that everything is going to be fine. Once you're finished not panicking, proceed with the instructions here, depending on the nature of your disaster.

Restore Individual Files

The easiest problem to recover from is a small number of files that are missing, or for which you need an older version. Follow these steps:

1. If you backed up the files using Time Machine, try restoring them following the instructions in [Restore Data with Time Machine](#).

Or, if you used another versioned backup program, follow the developer's instructions (check the Help menu) for restoring your files.

2. If the files are missing from your backup, check your bootable duplicate. Connect the drive (if it's not already attached) and navigate to the location on the disk where the file should be. If it's there, copy it to your main disk.
3. If Steps 1 and 2 don't work—for example if your entire backup drive is missing—move on to your secondary backup. That may mean fetching an extra backup drive from another location and following Steps 1 and 2 again, or using your Internet backup program to find the file in your online backup.

Tip: If you need an older version of a file created in a Versions-compatible app under Lion, you can retrieve it even more easily; see [Auto Save and Versions in Lion](#) for details.

Consider Special Backup Needs

Although duplicates, versioned backups, and offsite storage cover most situations the typical user will encounter, some people have special backup needs that don't quite fit the mold.

I'm thinking, for example, of users with vast numbers of digital photos and those who are [Dealing with Huge Volumes of Data](#) because they work extensively with the gigantic files required for digital video or pro audio applications.

Other special needs may include using [Version Control](#) software (including Versions, built into Lion) to save copies of your files more frequently than versioned backups would permit, [Backing Up a Small Network](#), [Backing Up While on the Road](#) (especially photos), and backing up [Windows Files and Volumes](#) on Intel-based Macs.

Each of these situations may require additional steps beyond conventional duplicates and versioned backups.

Digital Photos

It used to be that photos were printed on paper, and people often kept negatives as well, which could be used to create new photos if the paper copies were lost or damaged. But now that most photos are digital, your memories—a new baby, a wedding, a dream vacation—are as fragile as the media on which they're stored.

Most of us have at least a few digital photos on our computers. But some people take pictures constantly, and feel justifiably concerned about entrusting this irreplaceable data to their computers. Also, digital camera resolution is constantly on the rise—meaning the next new camera you buy is going to require more space for the same number of images as your previous one. Your mobile phone, iPod, or iPad probably has a camera too. As the number and size of your images increases, you may find that duplicates and versioned backups alone don't entirely meet your backup needs.

Consider Other Hardware Options

Earlier (see [Pick a Hard Drive](#)) I explained that hard drives are the best destinations for your backups in almost every case. However, I also mentioned that in some situations, you might not want a plain, stand-alone external hard drive but something with more (or fewer!) bells and whistles. In this chapter, I offer an overview of other types of hardware you might consider:

- ◆ [Alternative Hard Drive Options](#): From enclosures with extra features to connectors and adapters that let you attach drives to your Mac without any case at all, there are numerous choices.
- ◆ [RAIDs and RAID-Like Tech](#): Hard drive arrays have benefits, but may not be as useful as their manufacturers want you to believe. (The Drobo, which I discuss, is a special—and better—case.)
- ◆ [Network Storage Devices](#): Apart from Apple’s Time Capsule, many other devices offer network-accessible storage without a Mac or PC.
- ◆ [Local Network Servers](#): If you do have a computer on your network that functions (or can function) as a server, that’s another place you might store your backups.
- ◆ [Hardware You \(Probably\) Shouldn’t Consider and Why](#): Among the choices I can’t recommend for most people are optical media (CD and DVD), tape drives, and flash drives.

Alternative Hard Drive Options

For most people, the path of least resistance is to buy an ordinary hard drive that plugs into your Mac with a USB, FireWire, Thunderbolt, or eSATA cable. But you might be willing to pay extra for additional features, speed, or capacity; or you might prefer to pay less and buy components with which you can cobble together your own solution.

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About the Author



Joe Kissell is Senior Editor of *TidBITS*, a Web site and email newsletter about Apple and the Internet, and the author of numerous books about the Macintosh, including *Take Control of Maintaining Your Mac*. He is also a Senior Contributor to *Macworld*, was the winner of a 2009 Neal award for Best How-to Article, and has appeared on the MacTech 25 list since 2007. Joe has worked in the Mac software

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In his increasingly imaginary spare time, Joe likes to travel, cook, and practice t'ai chi. He lives in Paris with his wife, Morgen Jahnke, their son, Soren, and their cat, Zora. To contact Joe about this book, send him email at jwk@me.com and include [Take Control of Backing Up Your Mac](#) in the subject of your message so his spam filters won't intercept it.

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Shameless Plug

Although I write about computers as my day job, I have a great many other interests, which I write about on several Web sites, including Interesting Thing of the Day (<http://itotd.com/>) and my personal blog. You can find links to all my sites, a complete list of my publications, and more personal details about me at JoeKissell.com. Or follow me on Twitter ([@joekissell](https://twitter.com/joekissell)).

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Adam and Tonya are known in the Apple world as writers, editors, and speakers. They are also parents to Tristan, who thinks ebooks about clipper ships and castles would be cool.

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